DETAILED ACTION

Election/Restrictions

1. In the response to the Election/ Restriction dated 4/2/2010, the Applicant selected group I or claims 1 – 4, 9 – 15 and 17 without traverse.

Response to Amendment

2. In the amendment dated 7/1/2010, the following has occurred: Claims 1 – 18 have been canceled; Claims 19 – 25 have been added. Claims 19 – 25 are pending.

Notice to Applicant

3. The Specification uses both a Foundations Tier (FT) and a Foundations Services Tier (FST). Comparing the FT modules shown on pages 5 and 6 with the FST modules shown on page 11, the Examiner believes that FT and FST are the same.

Claim Objections

4. Claim 24 is objected to because of the following informalities: The Examiner believes that "than grouped" should have been "then grouped." Appropriate correction is required.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. The Examiner notes that claim 19 includes "a machine-readable physical medium." The Examiner understands that the physical medium is non-transitory.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 19 – 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

9. Claim 19 includes the limitation, "wherein the applications in the application services tier are business processes implemented as state machines by users interacting with the workflow SW module."

The Specification, page 19 shows (emphasis added):

Business process in healthcare enterprises are modeled as state-machines undergoing various state changes within HMOS. HMOs provides a Workflow Engine in DST that allows to define new business processes and link them with existing business processes. Each business process is split into different steps, called process states. Triggers that alter the state of the process are called events. Events may arise from within HMOS, through user interaction or from an external system. Change of state from one state to another is referred to as state transitions. Workflow Engine in DST provides an XML-based configuration mechanism to define process states, events and state transitions.

The Specification does not describe how to implement an application as a state machine.

10. Claim 24 includes the limitations

a. "resources are assigned security tokens listing atomic unit privileges."

b. "the resources grouped into application roles that serve as lowest exposed units for an application configurator"

The Examiner cannot find the basis for these limitations.

11. Claim 25 includes the limitation, "are accessed each time data access APIs are used." The Examiner cannot find a basis requiring a backup to occur "each time" data access APIs are used.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 19 – 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

- Regarding claim 19
    - The claim includes many "API" and "SW" without first what those abbreviations stand for. In particular, SW is not found within the specification.
    - The claim includes the limitation, "a domain services tier communicating with the foundation tier, the domain services tier providing APIs to access and operate on the stored information including at least a Drug Interaction Information store, patient identity management applying a unique identifier for identifying a patient across geographical barriers, using a

patient identifier, a hospital identification code, and a unique geographical code, and a workflow SW engine; and"

- The Examiner is not particularly sure how the break up the limitation into discrete units. The Examiner has made a best guess, below, however this may not be correct. The Examiner suggests rewriting the limitation to make it clearer.
- In addition, the limitation, "using a patient identifier, a hospital identification code, and a unique geographical code, and a workflow SW engine; and" does not state how these items are used. The Examiner understands that these items are only "used" as items stored on the physical medium. Therefore, the items themselves are nonfunctional data.

- The limitations, "foundation tier," "domain services tier," and "applications service tier" are described by limited functional actions. It is not clear where the boundaries of one functional tier end and the next begin.
- The limitation, "wherein the applications in the application services tier are business processes implemented as state machines by users interacting with the workflow SW module." The Examiner is unsure what the Applicant intends a "state machine" to be.

- Regarding claim 21, the claim includes, "which can be triggered across tiers or within a tier." The language appears to make the limitation optional. The Examiner understands "can be" to be "is."

- Regarding claim 22, the claim includes
    - "QoS" It is unclear what parameters or functions the Quality of Service is guaranteeing.
    - "the foundation tier before taking up for processing." The Examiner notes that routing the call is a processing step. The Examiner is therefore unsure as to what "taking up for processing" specifically refers.
    - "thus guaranteeing QoS upfront instead of relying on statistical parameters after the operations." It is not clear whether this is a functional limitation of the QoS subsystem. The Examiner understands that this limitation is nonfunctional.
- Regarding claim 23, the claim includes
    - "thus ensuring standards compliance." It is not clear whether this is a functional limitation of the "a health-care standards subsystem." The Examiner understands this to be nonfunctional descriptive information.
- Regarding claim 24, the claim includes
    - "wherein users are assigned to non-overlapping security domains each with a different administrator," The limitation can be read that "each with a different administrator" refers to either the users or the domains. The Examiner understands that the domains have separate administrators. The Examiner suggests rewriting the limitation to include, "non-overlapping security domains, each security domain having a different administrator."
        - The Examiner understands that a domain administrator is a human. It is unclear how to require a human to perform an action.

- "resources are assigned security tokens listing atomic unit privileges" The Examiner is unsure whether the assignment provides functionality to the resources. The Examiner is unsure what the labeling, "atomic unit privileges" does. The tokens are not used in a later step and it is unclear how they are used in the current step. The Examiner understands this limitation to be applying labels to resources.
- "the resources grouped into application roles that serve as lowest exposed units for an application configurator." The Examiner is unsure how a unit is "exposed" and to what comparison a exposure is "lowest."
  - The Examiner believes that a "configurator" is a small software routine. However, the Examiner is unsure whether this is what the Applicant intended as it could have been a typographical error for configuration.
- "than grouped into business roles by the site administrators," It is not clear under what guidelines an administrator groups objects. In particular, it is not clear how one could exclude others from making and performing this human determined grouping.
- "thus managing security authorizations across large multi-site healthcare organizations." It is not clear whether this limitation is functional. The Examiner understands this to be nonfunctional descriptive information.

- Regarding Claim 25, the claim includes
  - "data backup and recovery functions are accessed each time data access APIs are used" The Examiner is unsure what is meant by a data access

API. It can be argued that all programs use data and therefore all programs use data access.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. ***Claims 19 – 25 are*** rejected under 35 U.S.C. 103(a) as being unpatentable over Bowman-Amua (herein Bowman), U.S. Patent 6, 742,015 in view of Knowlton, U.S. Pre-Grant Publication 2003/ 0204415.

16. As per claim 19,

Bowman teaches a system for development of information systems for health care, comprising:

- a server coupled to a data repository (figure 1 and column 10, lines 17 – 44);
- a software operating system executing on the server from a machine-readable physical medium, the operating system comprising (figures 10 – 13 and column 10, lines 17 – 55):
    - a foundation tier providing functions at least (the Examiner notes that the name, "foundation tier" does not impart functionality on this tier, figure 3, #306)
        - for backup and recovery of the software operating system and its components (column 19, lines 24 – 49, backup and column 31, lines 51 – 67, base services) and

- for messaging protocol (column 19, lines 24 – 49, report management and column 31, lines 51 – 67 communication);

- a domain services tier communicating with the foundation tier (The Examiner notes that the name, "domain services" does not impart functionality on this tier), the domain services tier providing APIs to access and operate on the stored information (column 35, lines 18 - 29 where APIs are standard part of Microsoft Win32 Operating System, column 52, lines 7 – 11 where SQL has built in APIs)
- an application service tier (column 18, line 42 – 46);
- wherein the applications in the application services tier are business processes implemented as state machines by users interacting with the workflow SW module (column 102, lines 9 – 25),
  - changes in state being triggered by events taking place within the operating system (column 118, lines 3 – 14),
    - external to the operating system (column 123, lines 1 – 55), or
    - by user interaction, and
  - wherein the messaging protocol (column 51, line 65 – column 52, line 35)
    - is triggered by internal events (figure 179, 17902 – 17904), and
    - provides updates of states between the business processes (figure 179, 17916, response).

Bowman does not explicitly teach

- a domain services tier communicating with the foundation tier, the domain services tier providing APIs to access and operate on the stored information including at least
  - a Drug Interaction Information store,
  - patient identity management applying a unique identifier for identifying a patient across geographical barriers,
  - using a patient identifier, a hospital identification code, and a unique geographical code, and a workflow SW engine; and
- an application service tier providing specific applications for at least admission, discharge and transfer operations, and for electronic medical record management;

However, Knowlton further teaches

- a domain services tier communicating with the foundation tier, the domain services tier providing APIs to access and operate on the stored information including at least
  - a Drug Interaction Information store (paragraph 94 and Figure 5C, allergies),
  - patient identity management applying a unique identifier for identifying a patient across geographical barriers (paragraph 111, ssn),

- using a patient identifier, a hospital identification code, and a unique geographical code, and a workflow SW engine (paragraph 148, facility address and paragraph 161, zip code, figure 10E facility information); and

- an application service tier providing specific applications for at least admission, discharge and transfer operations, and for electronic medical record management (paragraph 170, where a change in patient profile includes transfer);

It would have been obvious to one of ordinary skill in the art at the time of the invention to add these features into Bowman. One of ordinary skill in the art at the time of the invention would have added these features into Bowman with the motivation to present a graphical user interface to a caregiver of the patient, and receives via the graphical user interface input data relating to a patient profile of the patient from the caregiver where the patient profile includes at least one of an objective attribute and a subjective attribute (Knowlton, paragraph 10).

However, the data is considered nonfunctional descriptive information. Substituting the claimed data for other data not claimed would be an equivalent substitution of nonfunctional data to achieve the expected result.

Throughout the Specification, the Applicant makes repeated reference to incorporation of standards. The Applicant is not claiming the invention of these standards or the use of a standard in a way other than commonly accepted. Therefore, it is understood that the use

of a standard in a known way produces the prima facie obvious result. Wherever above the Applicant's standard is not explicitly stated within the references, it would have been obvious to use them for their expected purpose.

17. As per claim 20, Bowman in view of Knowlton teaches the system of claim 19 as described above. Bowman further teaches the system wherein the messaging protocol in the foundation tier uses a Publish-Subscribe model for communication between tiers and between internal modules (column 70, lines 3 – 32), including between the applications operating in the application service tier (column 70, lines 27 - 32).

18. As per claim 21, Bowman in view of Knowlton teaches the system of claim 19 as described above. Bowman further teaches the system wherein

- the business processes are instantiated as state machines undergoing state transitions (column 120, line 1 - column 121, line 4),
- the workflow engine provides an XML-based configuration mechanism (column 41, lines 1 - 48) enabled for a user to define process states, events and state transitions (column 41, lines 24 - 33),
    - which can be triggered across tiers or within a tier (column 41, lines 34 – 48 e-commerce and HL7).

19. As per claim 22, Bowman in view of Knowlton teaches the system of claim 19 as described above. Bowman further teaches the system wherein each call by an API is routed to a quality of service (QoS) subsystem in the foundation tier before taking up for processing (column 89, line 1 – column 90, line 32 where the QoS is based upon throughput), thus guaranteeing QoS upfront instead of relying on statistical parameters after the operations.

20. As per claim 23, Bowman in view of Knowlton teaches the system of claim 19 as described above.

Bowman does not explicitly teach the system wherein any application in the application service tier that requires entry of clinical terms is constrained in the workflow to route the clinical terms through a health-care standards subsystem in the domain services tier before acceptance as clinical data, thus ensuring standards compliance.

However, Knowlton further teaches the system wherein any application in the application service tier that requires entry of clinical terms is constrained in the workflow to route the clinical terms through a health-care standards subsystem in the domain services tier before acceptance as clinical data (figure 64, ICD-9 entry).

It would have been obvious to add this feature for the same reasons as described in claim 19.

21. As per claim 24, Bowman in view of Knowlton teaches the system of claim 19 as described above. Bowman further teaches the system comprising

- a Globally Controlled Locally Managed (GCLM) security authorization assignment and management subsystem,
    - wherein users are assigned to non-overlapping security domains each with a different administrator (column 34, lines 30 - 34 where administrator is considered nonfunctional descriptive information and column 52 line 39 – column 53, line 17 where users within a level are non-overlapping),
    - resources are assigned security tokens listing atomic unit privileges (column 80, lines 17 – 27, keys),

- the resources grouped into application roles that serve as lowest exposed units for an application configurator (column 289, lines 10 – 23),

Bowman in view of Knowlton do not explicitly teach:

- resources are assigned security tokens listing atomic unit privileges,
  - the resources grouped into application roles that serve as lowest exposed units for an application configurator,
    - than grouped into business roles by the site administrators,
      - the business roles serving as the lowest assignment units to end-users of the system, thus managing security authorizations across large multi-site healthcare organizations.

However, it is prima facie obvious to one of ordinary skill in the art to sort items into groups by integration or separation. (see MPEP 2144.04)

22. As per claim 25, Bowman in view of Knowlton teaches the system of claim 19 as described above. Bowman further teaches the system wherein the data backup and recovery functions are accessed each time data access APIs are used (column 19, lines 25 – 50),

The Examiner understands this limitation from the last paragraph on page 14 ending at the top of page 15. Included is, "The daily back up procedure also provides provision for integration with OLAP and other Knowledge Integration Systems, which makes them synchronized with latest data." The Examiner notes that actual integration is not

required. Read broadly, "integration functionality" is a potential integration with a database.

Bowman in view of Knowlton do not explicitly teach

- and these functions provide, in addition to backup, online analytical processing (OLAP) and knowledge integration functionalities.

However, Bowman teaches online access of data (column 43). Further, Bowman teaches using online forms to process data (column 38, lines 15 – 30). It would have been obvious to one of ordinary skill in the art at the time of the invention to use existing data with existing tools to achieve the expected outcome.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NEAL R. SEREBOFF whose telephone number is (571)270-1373. The examiner can normally be reached on Mon thru Thur from 7:30am to 5pm, with 1st Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Morgan can be reached on (571) 272-6773. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Neal R Sereboff/
Examiner
Art Unit 3626